



ROR — ROTATE RIGHT

Register — 6A (1 byte)

6502

The contents of the byte are rotated one bit right through the carry.

EFFECT ON PSR

SV BD I Z C
MSB [X] [] [] [] [X] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	6A	ROR A

BEFORE

PSR: 01011001
A: 1??????1

AFTER

PSR: 1??????1
A: 10101100

6A SC100

Data Memory | Program Memory

RR — ROTATE RIGHT

Register CB (2 bytes)

Z80

The contents of the byte are rotated one bit right through the carry.

EFFECT ON PSR

SZ H V NC
MSB [X] [X] [0] [X] [0] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	CB 1C	RR H

BEFORE

PSR: 01011001
A: 10?0?001

AFTER

PSR: 10?0?001
A: 10101100

CB SC100
23 SC101

Data Memory | Program Memory

SBC — SUBTRACT WITH BORROW

Absolute — ED (3 bytes)

6502

The contents of the memory location are subtracted from the accumulator; carry shows borrow status.

EFFECT ON PSR

SV BD I Z C
MSB [X] [X] [] [] [X] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	ED A3 59	SBC \$59A3

BEFORE

PSR: 00?????1
A: A7

AFTER

PSR: 00?????1
A: 22

85 SC100
ED SC101
A3 SC102
59 SC102

Data Memory | Program Memory

SBC — SUBTRACT WITH BORROW

Immediate — DE (2 bytes)

Z80

The contents of the byte following the op-codes are subtracted from the accumulator.

EFFECT ON PSR

SZ H V NC
MSB [X] [X] [X] [] [X] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	DE 85	SBC A,\$85

BEFORE

PSR: 00?????0
A: A7

AFTER

PSR: 00?0?000
A: 22

DE SC100
85 SC101

Data Memory | Program Memory

ASL — ARITHMETIC SHIFT LEFT

Register — 0A (1 byte)

6502

The contents of the byte are shifted one bit left through the carry; zero is shifted into lsb.

EFFECT ON PSR

SV BD I Z C
MSB [X] [] [] [] [X] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	0A	ASL A

BEFORE

PSR: 0??????1
A: 10000000

AFTER

PSR: 0??????1
A: 00000000

0A SC100

Data Memory | Program Memory

SLA — SHIFT LEFT ARITHMETIC

Register — CB (2 bytes)

Z80

The contents of the byte are shifted one bit left through the carry; zero is shifted into lsb.

EFFECT ON PSR

SZ H V NC
MSB [X] [X] [0] [X] [0] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	CB 23	SLA E

BEFORE

PSR: 0??????1
E: 10000000

AFTER

PSR: 01?0?001
E: 00000000

CB SC100
23 SC101

Data Memory | Program Memory

CMP — COMPARE THE ACCUMULATOR

Absolute — CD (3 bytes)

6502

The contents of the memory location are compared with the accumulator.

EFFECT ON PSR

SV BD I Z C
MSB [X] [] [] [] [X] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	CD 7E 40	CMP \$407E

BEFORE

PSR: 0??????1
A: 7D

AFTER

PSR: 0??????1
A: 7D

CD SC100
7E SC101
40 SC102

Data Memory | Program Memory

CP — COMPARE THE ACCUMULATOR

Immediate — FE (2 bytes)

Z80

The contents of the byte following the op-code are compared with the accumulator.

EFFECT ON PSR

SZ H V NC
MSB [X] [X] [X] [X] [1] [X] LSB

Example:

LOCATION	MACHINE CODE	ASSEMBLY LANGUAGE
C100	FE 7D	CP \$7D

BEFORE

PSR: 0??????1
A: 7D

AFTER

PSR: 01?0?010
A: 7D

FE SC100
7D SC101

Data Memory | Program Memory